

WHAT IS CLAIMED IS:

*Sub A<sup>2</sup>* 1. In a radio network using TCP as the transport protocol for acknowledging message packets successfully received at a destination station and retransmitting message packets from the source station which are not acknowledged within a predetermined period of time, a method of reducing the unnecessary retransmission of message packets

comprising the steps of:

- a) receiving a TCP retransmission packet at a source radio from a source station for retransmission to a destination station and maintaining the packet in a message queue until retransmission;
- b) receiving a TCP acknowledgment packet at the source radio from a destination station;
- c) comparing the received acknowledgment packet from the destination station with the retransmission packet in the message queue; and
- d) discarding the retransmission packet from the message queue if the retransmission packet corresponds to the acknowledgment packet.

2. The method of Claim 1 wherein the step of comparing includes consideration of the sequence number, destination address, source address, destination port, source port, and TCP control bits of the received acknowledgment message packet with those of the retransmission message packet in the queue.

3. The method of Claim 1 where in the message packets are Internet Protocol

(IP) packets.

4. A method of reducing the retransmission of previously successfully transmitted message packets from a source station to a destination station through a radio network in which the source station has at least one corresponding source radio and the destination station has at least one corresponding destination radio and the radio network utilizes TCP as the reliable transport protocol, comprising the steps of

- a) maintaining a message queue at the source radio including TCP retransmission messages from the source radio for transmission to destination stations;
- b) evaluating each TCP message received at the source radio to determine whether the received message is a TCP acknowledgment from the destination station corresponding to a TCP retransmission message in the message queue;
- c) discarding the TCP retransmission message from the message queue if the evaluated TCP message is an acknowledgment corresponding to the TCP retransmission message.

5. The method of Claim 4 wherein the message packets are Internet Protocol (IP) packets.

6. A system for reducing the amount of unnecessary retransmissions from a source radio to a destination radio in a communication network which uses TCP as the transport protocol comprising:

a message queue at the source radio including TCP retransmission message

packets;

means for evaluating each TCP message received at the source radio to determine whether the received message is a TCP acknowledgment from a destination radio corresponding to a TCP retransmission in the message queue; and

means for discarding a TCP retransmission message from the message queue if an evaluated TCP message.

7. The system of Claim 6 wherein the means for evaluating includes means for consideration of the sequence number, destination address, source address, destination port, source port, and TCP control bits of the received acknowledgment message packet with those of the retransmission message packet in the queue.

8. In a radio network using TCP as the transport protocol for acknowledging message packets successfully received at a destination station and retransmitting message packets from the source station which are not acknowledged within a predetermined period of time, a method of reducing the unnecessary retransmission of message packets comprising the steps of:

- a) receiving TCP packets at a source radio from a source station for retransmission to a destination station;
- b) maintaining the TCP packets in a message queue until retransmission;
- c) comparing each received TCP packet from the source station with the TCP

packets in the message queue; and

- d) discarding the received TCP packet if the TCP packet matches a TCP packet already in the message queue  
to thereby prevent duplicate TCP packets from being stored in the message queue.

9. The method of Claim 8 wherein the method of comparing includes consideration of the sequence number, destination address, source address, destination port, source port, and TCP control bits of the received acknowledgment message packet with those of the retransmission message packet in the queue.

10. The method of Claim 8 wherein the message packets are Internet Protocol (IP) packets.

11. In a communication network of a plurality of stations which utilizes TCP as the transport protocol, each station having at least one radio for transmitting message packets between stations, a method of reducing the number of TCP retransmission packets retransmitted by the radio, the improvement comprising the steps of:

- a) recognizing a TCP acknowledgment message received at the radio, and
- b) preventing the retransmission of a message packet which corresponds to the recognized TCP acknowledgment.

12. The method of Claim 11 wherein the message packets are Internet Protocol (IP) packets.

13. In a communication network of a plurality of stations which utilizes TCP as the transport protocol, each station having at least one radio for transmitting message packets between stations, the improvement comprising:

means for recognizing the receipt of a TCP acknowledgment message at each radio.